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(54) Title: **INSULIN HIGHLY RESPIRABLE MICROPARTICLES**

(57) Abstract: The present invention describes novel dried powders of peptide therapeutic agent useful for producing highly respirable aerosols and the methods for their manufacture. Insulin is the peptide therapeutic agent in the preferred embodiment. The powders of insulin prepared for pulmonary administration are characterized by the peculiar structure and shape of the microparticles that allow the powder to flow and to be easy aerosolized. Typical dry powder of insulin described in this patent show corrugated, nonagglomerated microparticles with a low tapped density. The mean geometric diameter (particle size) ranges between 1.0 and 10.0 micron and the mass median aerodynamic diameter (MMAD) ranges between 1.0 and 4.0 micron. These insulin pulmonary powders exhibit in vitro a very high respirable fraction (>75%).



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